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Incident Commander–Response Phase



INTRODUCTION

This module describes the steps that an Incident Commander (IC) should take at the scene of an incident involving radioactive material. It discusses actions, hazards, and other considerations the IC should assess before allowing personnel to enter an incident scene. In addition, the module also identifies external agencies that are available to provide assistance to the IC, and identifies actions necessary for controlling access to an incident scene involving radioactive material.

PURPOSE

The purpose of this module is to provide you with an understanding of the actions that should be considered during the response phase of an incident involving radioactive material. This module will help you realize that a successful response involves the integration of all responding organizations and agencies.

MODULE OBJECTIVES

Upon completion of this module, you will be able to:

1. Identify the steps an IC should take at the scene of an incident involving radioactive material.
2. Identify actions, hazards and other considerations that the IC should assess before allowing personnel to enter the immediate incident area that involves radioactive material.
3. Identify federal agencies available to provide assistance to the IC at an incident involving radioactive material.
4. Identify actions necessary for controlling access to an incident involving radioactive material.

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INITIAL RESPONSE

The focus in this module is on incident command and its specific role in a transportation incident involving radioactive material. Incident command systems are established to provide clear areas of responsibility at any emergency scene, including those involving radioactive material.



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The incident command or management system presented in this section may differ from that currently used in your organization or jurisdiction. Although your local procedures may differ, the concepts presented here still apply.



Approaching the Incident

The first responder on-scene is considered the Incident Commander (IC) until relieved by a more senior command officer. Approaching an incident involving radioactive material is not significantly different than approaching an incident involving other hazardous material. The steps the Incident Commander should take when approaching the scene include:

- Approach the incident scene from upwind and upslope
- Attempt to identify incident scene hazard(s) from as far away as possible, using binoculars if available
- Attempt to identify hazardous material(s) and protective actions and equipment using the Emergency Response Guidebook
- Identify access pathways that will provide as much shielding as possible
- Identify direct routes of entry and egress to minimize radiation exposure and reduce the time entry teams spend in the controlled area

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Before allowing entry to any incident involving hazardous material, the IC should collect information, identify hazards, and associated safety requirements.

Medical considerations take priority over radiological controls for incidents that involve only radioactive material. When an incident involves other hazardous material, additional information should be collected and evaluated before allowing access.



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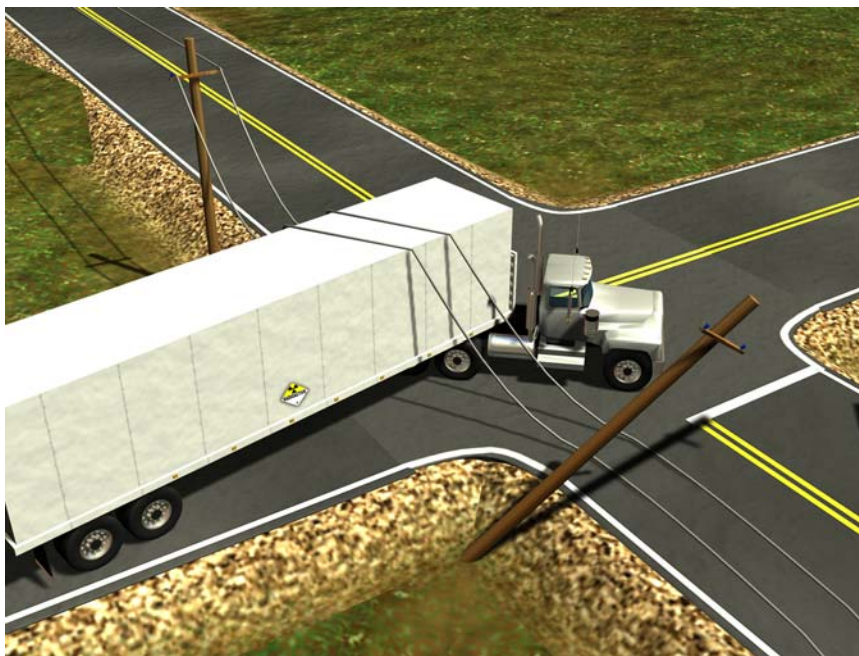


Collect Information

Gather all available information concerning the material involved in the incident and assess the scene; avoid focusing only on the radiation hazard. Identify other potential hazards associated with the radioactive material (e.g., corrosive) as well as other hazards that may be present. An inadequate scene size up can result in additional risk to responders and delays in rescuing victims. In most cases, information sources for radioactive material shipments will be the same as for other hazardous material. There are a few exceptions and some special information that may be available. These include:

- The presence of escort personnel for sensitive, military, or other special shipments
- Specially designated transport containers which may have unique placards, labels, or other markings

Identifying these exceptions and locating additional information involves recognizing hazards.



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Recognize the Hazards

Observe and collect information on all material and packages present at the scene.

- Identify the type, condition, location, and position of shipping packages
- Take initial steps to determine if radioactive material has been released (Measurements of radiation levels, conducted by qualified personnel using appropriate monitoring equipment, can help in making this determination)
- Locate injured persons and their positions relative to packages or material



The IC should also be aware of other hazards that may be present, such as:

- Fire
- Spilled fuel
- Other hazardous cargo
- Downed power lines
- Steep or uneven ground
- Passing traffic

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Determine Safety Requirements

The IC, based on the hazards present, should determine necessary safety precautions, such as:

- Establishing control zone boundaries as appropriate
- Establishing stay times within control zone boundaries
- Mitigating other hazards that may be present
- Requiring Personal Protective Equipment (PPE)
- Monitoring the adequacy of control zone boundaries
- Monitoring public protective action requirements
- Ensuring that required notifications have been completed

Notifications

Local Agencies

The IC should know which local agencies need to be notified of an incident involving radioactive material. Notifications should be based on the responding agency's operating procedures.

Local agencies that may require notification include:

- Hazardous material response team
- Health departments/districts
- Governmental authorities
- Public works facilities
- Environmental organizations
- Natural resource agency
- Emergency management agency

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State Agencies

State agencies may also require notification. It is in your best interest to become aware of specific agencies that require notification and to be familiar with local notification procedures that have been developed for your jurisdiction before an incident occurs. The state agency responsible for radioactive material transportation incidents varies from state to state. State agencies that may require notification include:

- Radiation authority
- Law enforcement
- Transportation agencies
- Natural resource agency
- Environmental protection agency
- Emergency management agency

While state regulations or statutes may require the shipper to make these notifications, the IC should not rely on this. The IC should make certain that appropriate agencies are notified.

Federal Agencies

Federal agency notification can be divided into two categories—agencies that can provide assistance to the IC and agencies that are reporting agencies only. The IC should make notifications to this second group when time and conditions allow. You should be aware that in some jurisdictions, the responsibility and/or authority for requesting federal assistance might be vested in a state or local agency.

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Federal agencies providing direct assistance include:

- Department of Energy (DOE) - Contact the DOE through your Regional Coordinating Office's 24-hour number
 - Radiological Assistance Program (RAP) teams provide on-scene or telephone assistance including technical advice concerning radiological material and equipment
 - The Radiation Emergency Accident Center/Training Site (REAC/TS) – provides specialized medical information on the health effects of radioactive material exposure
- National Response Center (NRC) - Coordinates federal response to the incident
- Department of Defense (DOD) - Provides support for defense related shipments
- Nuclear Regulatory Commission (NRC) – Provides support for NRC licensed material (e.g., commercial spent nuclear fuel, etc.)

Additional federal agencies that may require notification, depending on the nature of the incident include:

- U.S. Department of Transportation (DOT)
- U.S. Environmental Protection Agency (EPA)
- U.S. DOE (radiological transportation incidents involving DOE owned material or when DOE assets are being requested to respond)
- U.S. Nuclear Regulatory Commission

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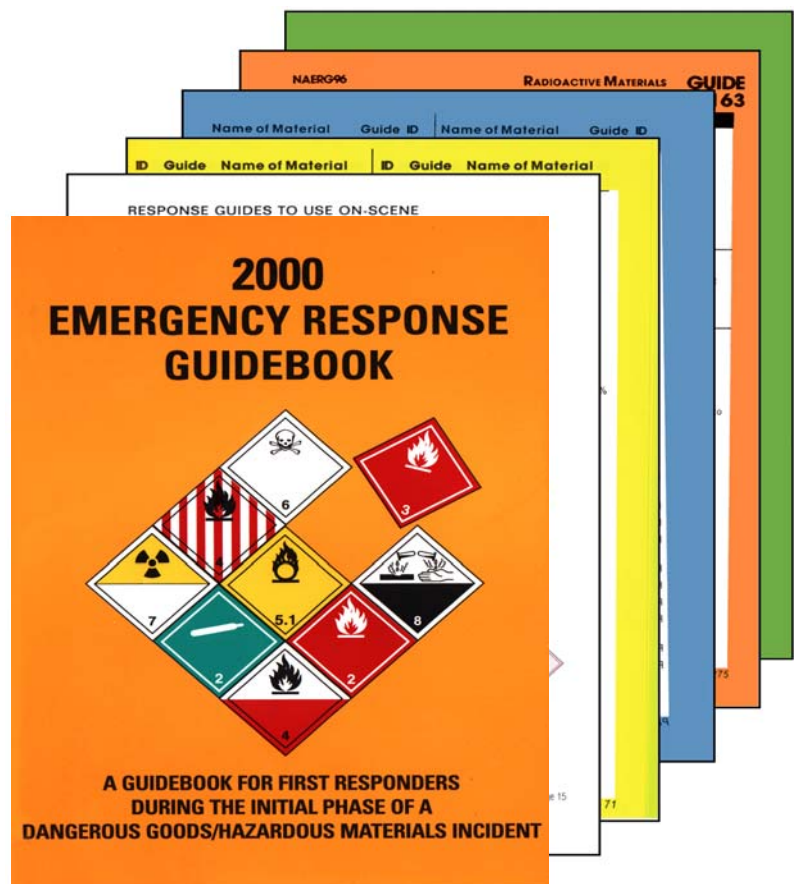
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Sources of Information

Several sources of information are available to the IC that will assist with operational planning, such as:

Printed Material

- Emergency Response Guidebook (ERG) guides 161 through 166
- Material Safety Data Sheets (MSDS) (from shipper, producer, and consignee)
- Shipping papers



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Technical Resources

- Shipper or shipper's representative (available via the emergency contact phone number listed on the shipping papers)
- Escort personnel or persons involved with the shipment who have special training
- State agency responsible for radiological incident assistance, (state police, state radiation authority, etc.)
- National and federal agencies that have 24-hour phone numbers and can provide information on radioactive material

National and federal agencies with 24-hour numbers include the following:

U.S. Department of Energy (DOE)	(202) 586-8100
U.S. Nuclear Regulatory Commission	(301) 816-5100
CHEMTREC	(800) 424-9300
CHEM-TEL	(800) 255-3924
INFOTRAC	(800) 535-5053
National Response Center	(800) 424-8802

Estimating Potential Outcomes

After available information has been collected and reviewed, the IC must assess and interpret this information and develop an action plan based on estimated potential outcomes. When formulating a plan, the IC will need to consider the potential for:

- Personal injury or death
- Disruption of the community/area
- Damage to property and/or environment

In incidents involving only radioactive material, conditions do not deteriorate rapidly. When radioactive material packages are damaged or breached, the contents generally will not burn or otherwise react with the environment. Therefore, the major concern will be to protect people and the environment.

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When estimating the potential outcome, the following considerations should be included:

- Which actions will result in lower individual exposure to radiation and/or contamination?
- What are the risks, and benefits?
- Are the risks worth the benefits?
- Should the population be evacuated or sheltered in-place?

Population Protective Actions

Population protective actions are those that are taken to protect the general public in the vicinity of an incident. These decisions must be based not only on the events that have occurred, but also on the possible outcomes of actions that are planned by the IC. If an event has the potential to cause or increase a release of material, the population at risk is determined by the extent of the potential release. Protective actions for the population are generally of two types—evacuation or in-place sheltering.

Evacuation

At incidents involving radioactive material, the need to evacuate depends largely on the condition of the packages, the nature of the material, and the presence of fire or other influencing conditions. The IC must assess whether the material poses enough of a hazard to warrant an evacuation and associated difficulties.

Sheltering In-Place

An option often more viable and less costly is in-place protection or sheltering. In incidents involving radioactive material, there are some in-place sheltering concerns. For example, people must be instructed to close doors and to stay in an interior room, if possible.

Sheltering/Evacuation Distances

The ERG suggests an initial isolation distance of 80 to 160 feet in all directions. Fires or other conditions may require increased distance in the downwind direction. The IC should refer to the ERG to identify isolation distances for specific material and conditions.

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Planning the Response

The IC must develop a plan of action based on local emergency response plans and the agency's own standard operating plans. When developing the action plan, the IC should consider any radioactive material specific issues that will involve or impact the following:

- Rescue
- Safety
- Public protective actions
- Leak/spill control
- Fire control
- Support services
- Cleanup and recovery

Implementing the Action Plan (Tactical Considerations)

Once the IC has developed and communicated the action plan, command staff will develop tactical plans to accomplish the established goals. Tactical considerations specific to radioactive material incidents include:

- Monitoring and dosimetry
- Shielding
- Containment of radioactive material
- Concentration of radioactive material
- Decontamination
- Evidence preservation
- Documentation and disposal

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Safety

A safety briefing must be provided for personnel before they enter the hot zone. The pre-entry briefing should include:

- Identification of all hazards (radiological and non-radiological), including the condition of packages and material
- Review of radiation safety concepts, including limiting time in the area, maintaining distance from potential radiation sources, and using available shielding
- Methods that can be used to limit the quantity of radioactive waste generated, such as keeping contaminated material and objects isolated
- Reinforcement of the need for not eating, drinking, smoking, or chewing at the incident scene to reduce the risk of internal contamination

Controlling Access into the Incident Area

Controlling access is implemented to:

- Prevent entry of unauthorized personnel into the area
- Control the spread of contamination
- Maintain accountability of personnel working in the controlled area
- Follow local procedures for establishing exposure records (stay times, activities, use of dosimetry, and work area survey results should be included)
- Document decontamination efforts and results of personal surveys after decontamination

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Termination and Follow-up Actions

It is the responsibility of the IC to formally terminate the emergency phase of the incident. Before termination, the IC should identify the process, procedures, and agency responsible for obtaining cleanup and restoration services. This may also require implementing local procedures and related procedures as required under the Superfund Amendments and Reauthorization Act (SARA) Title III, Section 303 of the Emergency Planning and Community Right-to-Know Act of 1986, or other local emergency response planning legislation. While the senior fire official is typically the IC during the emergency phase, the responsibility for the recovery phase can be transferred to a local or state authority with appropriate incident command training. The transfer of responsibility typically occurs after emergency response actions have been completed.

notes



Check Your Understanding

1. When approaching an incident involving radioactive material, the IC should approach the incident from _____ and upslope and attempt to identify incident hazard(s) from a _____, using binoculars if available.
2. The _____ will help identify hazardous material(s) and determine protective actions including those associated with radioactive material.
3. When collecting information at the scene of an incident involving radioactive material, the IC should look at _____ potential hazards.
4. Limiting access into the incident area will help control the spread of _____.
5. REAC/TS is a DOE resource that can provide specialized medical information on the _____ effects of radioactive material exposure.
6. Two public protective actions include _____ and _____.

ANSWERS

1. upwind
 2. Emergency Response Guidebook
 3. all
 4. contamination
 5. health
 6. evacuation
- sheltering in place

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